Mission.Systems 2002
Challenges for the 21st Century

The Second Annual International Conference for Technology in Space Operations

May 29th – May 31st, 2002

National Aeronautics and Space Administration (NASA)

Hosted by:
The Institute for Advanced Interdisciplinary Research

Conference Location:
Hilton Houston Nassau Bay and Marina next to NASA's Johnson Space Center on beautiful Clear Lake in Houston, Texas

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Challenges for the 21ˢᵗ Century

The National Aeronautics and Space Administration (NASA) and The Institute for Advanced Interdisciplinary Research (IAIR) are pleased to announce the second annual international conference devoted to enabling a dialogue on internationalizing mission operations and related technologies.

Mission.Systems 2002: Challenges for the 21st Century will be held from May 29 to 31, 2002, at the Hilton Resort and Marina in Nassau Bay on the shores of beautiful Clear Lake. The Hilton is conveniently located across from the NASA Johnson Space Center in Houston, Texas.

We invite all interested parties from NASA, academia, space technology laboratories, industry and the international aerospace community to join us. A diverse attendance ensures that the primary goal of the conference of networking and sharing innovative concepts will be fulfilled. Last year's conference, Mission.Systems 2001, focused on NASA's space technology labs and was highly successful.

As a forum, Mission.Systems 2002 represents an unprecedented opportunity for interaction between all those supporting mission operations and the operations centers. We hope that the resulting dialogues and partnerships will advance new methods of approach and operations technologies for NASA and the international operations community.

Conference Director	Administrative Director
Steven Gonzalez	Tom Nicodemus
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Mission.Systems 2002

SESSION PLANS

Each of the three conference days will feature a morning plenary speaker or panel, followed by presentation sessions and panels. A keynote address by Randy Stone, Deputy Director of Johnson Space Center and former Director of Mission Operations will highlight day one of the conference. The following themes are each divided into multiple sessions, with approximately 4-5 presentations per session. A poster session and reception will round out the Mission.Systems 2002 program and are as important as the sessions for exploring ideas with colleagues and potential partners.

The Mission.Systems 2002 conference will focus upon the following 3 themes that will encourage dialogue and facilitate networking that enhances JSC's role as an operational center for the human exploration and development of space.

- **Operations: Past, Present, and Future**. This day will examine the evolution of the current mission control concept, lessons in past space operations, ideas for future mission control centers, and mission control centers that have been developed in industry. The day concludes with a networking blender.

- **Internationalizing Operations and Research Infrastructure.** The second day of the conference will focus on technologies and processes to enable distributed and international operations. Among the technologies that will be highlighted include networking, storage technology, knowledge management and collaborative tools. The second day will also focus on the dissemination, integration, and sharing of information among international offices. A panel discussion and evening poster session will bring the day to a close.

- **International Collaboration and Partnership.** The final day will examine social issues, including training of international teams, dealing with intercultural differences, engaging the world's interest in space, planning for the future, and establishing new laws and policy for space operations.

The conference will conclude with a large group discussion "*Reaching the Vision: Paths to Inverting the Paradigm.*" This conference will provide an unprecedented opportunity for interaction between the nations, programs and labs that support a wide variety of operations and to lay the foundation for future human exploration programs.

Preliminary Agenda

Wednesday
MAY 29th, 2002

Operations: Past, Present, and Future

7:15 AM – 4:00 PM *Registration*
8:00 AM – 9:00 AM *Continental Breakfast*

9:00 AM   *Keynote Speaker*
                         "Operations: Past, Present, and Future"
                                   Randy Stone, NASA Johnson Space Center Deputy Director
                                   and former Director of Mission Operations

10:00 AM   *Break*

10:10 AM   *Introduction*
                         "2076: Inverting the Paradigm"
                                   Steven Gonzalez, Chief, Operations Research and Strategic
                                   Development Branch, NASA Johnson Space Center

Operations Best Practices in the Space Program   10:40 AM to 12:10 PM

Lessons learned from the evolution of mission control and other operations at NASA in establishing effective international partnerships and operations.

"TBD." Jim van Laak, former Manager, Operations Integration and Operations Office and
          Deputy Program Manager, Phase 1 Shuttle-Mir Program, NASA Johnson Space
          Center, Houston, Texas.
"TBD." Donna Sellers, NASA Marshall Space Flight Center, Huntsville, Alabama.
"Evolution of Medical Ops." Stacey Morrison, NASA Johnson Space Center, Houston,
          Texas.
"Soyuz as a Lifeboat: A Study of International and Interpersonal Relationships." Danny
          Deger, NASA Johnson Space Center, Houston, Texas.

12:10 PM   *Lunch Break*

Operations Best Practices in International Interactions   1:10 PM to 2:30 PM

Lessons learned from international interaction among government and industry, and experiences in the commercial world in operating internationally.

"Mitsubishi Corporation – International Business Operations Experiences." Robert
          Carlson, Vice President, Space Business Unit Manager, Mitsubishi International
          Corporation, Huntsville, Alabama.

"FAA Teaming Best Practices." Judith Orasanu, Manager, Human and Organizational Risk Management for the Engineering for Complex System (ECS) program, NASA Ames Research Center, Palo Alto, California.
"TBD." Federal Aviation Administration, Washington, D. C.
"TBD." Nuclear Industry.

2:30 PM   *Break*

Changing the Face of Space Operations   2:50 PM to 4:10 PM

Projects and technologies which move us toward the ability to establish constellations of networked control centers, long duration manned flight, and colonies in space.

"SAFER Training On-Board the ISS." Patrick McCartney, NASA Johnson Space Center, Houston, Texas.
"The Role of Autonomous Operations." Wendall Chun, Lockheed Martin, Denver, Colorado.
"Technology Challenges for Pharmacotherapeutics in Space." Lakshmi Putcha, NASA Johnson Space Center, Houston, Texas.
"International Space Station Robotic Assembly Analysis." .″ Jana Rebmann, The Boeing Company, Houston, Texas.

4:10 PM   *End of Sessions*

4:10 PM – 6:00 PM *Networking/Blender*

Thursday
MAY 30th, 2002

Internationalizing Operations and Research Infrastructure

7:15 AM – 4:00 PM *Registration*
7:30 AM – 8:30 AM *Continental Breakfast*

8:30 AM   *Keynote Speaker*
                 "The Olympics Mission"
                     Xavier Roig, President SchlumbergerSema Major Events, Schlumberger Industries, Houston, Texas.

9:30 AM   *Break*

Infrastructure to Enable Distributed International Operations 9:40 AM-11:20 AM

Hardware and software architectures that enable networking, collection, storage and distribution of data.

"TBD." Oracle.
"TBD." Sun Microsystems.

"TBD." Computer Associates.
"TBD." Bill Farr, Xtendsoft.
"TBD." Intel. (invited)

11:20 AM   *Lunch Break*

Information Sharing   **12:20 PM to 1:40 PM**
Hardware, software, and processes that enable and enhance planning and design among a distributed team.

"The ARIS-ICE Website – Documenting and Disseminating Information from the ISS."
        Naveed Quraishi, NASA Johnson Space Center, Houston, Texas.
"Multimedia Maintenance Manuals: ISS Applications for On-orbit Maintenance
                Roberto Angelini, Alenia Spazio, Italy.
"TBD." Valerie Shalin, Wright State University.
"Surfing the Net in Space." Pat Carreon, NASA Johnson Space Center, Houston, Texas.

1:40 PM   *Break*

Real-Time Knowledge Management   **2:00 PM to 3:20 PM**
Assistance in distribution and interpretation of real-time mission data.

"Remote Operation and Real-time Data for Researchers." Hasan Rahman, NASA Johnson
        Space Center, Houston, Texas.
"Intelligent Assistant for Space Shuttle Diagnostics." Feilong Chen, Texas A&M
        University, College Station, Texas.
"Neural Nets for Knowledge Management." Dallas Noyes, Cogito.
"Distributed Teams and Operations Risk Management." Patricia Jones, Deputy Division
        Chief, Human Factors Research and Technology, NASA Ames Research Center, Palo
        Alto, California. (invited)

3:20 PM   *Break*

3:40 PM   *Panel Discussion*
                     "Control Center Constellation for the Next Century"
                            Adam Farquhar, Schlumberger Industries, Houston, Texas.
                            Bill Smith, Lockheed Martin. (invited)
                            Darrell Bailey, NASA MSFC. (invited)
                            Patricia Jones, NASA ARC. (invited)

5:00 PM – 7:00 PM   *Poster Session*

7:00 PM   *Adjourn*

Friday
MAY 31st, 2002

International Collaboration and Partnership

7:15 AM – 12:00 PM *Registration*
7:30 AM – 8:30 AM *Continental Breakfast*

8:30 AM   *Keynote Speaker*
                   "Naval Research Laboratory and Blossom Point Operations

                     Jerry Golba, Naval Research Laboratory

9:30 AM   *Break*

International and Distributed Training Dynamics   9:40 AM-11:20 AM
The technical and social issues in the training and internal interaction of a team consisting of international or distributed members.

"The Dynamics of an International Team Working on a Portion of ISS Crew Training
                   Bob Holkan, MTS Global.
"International Team Dynamics." Robert Carlson, Vice President, Space Business Unit
         Manager, Mitsubishi International Corporation, Huntsville, Alabama.
"Teaching English for Special Purposes at NASA." Paula Bilstein, NASA Johnson Space
         Center, Houston, Texas.
"ESA's Training Facility and Tools for ISS Training." Orazio Chiarenza, European Space
         Agency.
"Russian/Intercultural Interaction." Natali Banasik, NASA Johnson Space Center,
         Houston, Texas.

11:20 AM   *Lunch Break*

International Projects   12:20 PM-1:20 PM
Examples of successful international projects.

"The Cassini-Huygens Mission to Saturn: Operations & Systems Overview." Rob Landis,
         NASA Jet Propulsion Laboratory, Pasadena, California.
"RD-180 – The Model of International Cooperation." Robert Ford, Lockheed Martin.
"Brazilian Scientific Satellite Missions for 2005-2010." Walter Gonzalez, Brazilian Space
         Agency, Brazil.

1:20 PM   *Break*

Planning for Long Duration Missions   1:30 PM-2:30 PM
Planning and simulation in expectation of long-term activity in space and on other planets.

"Human Factors and Crew Scheduling." Brian Peacock, NASA Johnson Space Center, Houston, Texas.
"INTEGRITY -- Integrated Human Exploration Mission Simulation Facility." Donald Henninger, NASA Johnson Space Center, Houston, Texas.
"Pioneering Low Cost, High Reliability: Mars Mission Operations Support and Jim Tillman, University of Washington.

2:30 PM *Break*

Engaging the World's Interest   2:50 PM-3:50 PM
Encouraging new collaborations between international space programs, providing opportunities for contributions by emerging space programs, and organizing educational and entertainment programs intended to encourage young people to get involved.

"Space School for Teenagers – National Institute for Space Research, Brazil." Tania Maria Sausen, CEP, Brazil.
"TBD." Kelly Snook, NASA Ames Research Center, Palo Alto, California.
"Yuri's Night – World Space Event." Jana Rebmann, The Boeing Company, Houston, Texas.

3:50 PM *Break*

4:00 PM *Large Group Dynamic Discussion*
"Reaching the Vision: Paths to Inverting the Paradigm"
Judith Sanders, NASA Johnson Space Center, Houston, Texas.
Amy Oberg, Dynegy, Houston, Texas.

5:00 PM *Conference Adjourns*

Conference Officials

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Steven Gonzalez, NASA Johnson Space Center, Houston

Technical Directors
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Steven Everett, NASA Johnson Space Center, Houston

Conference Administrative Director
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Regina North, NASA Johnson Space Center, Houston

General Information

CONFERENCE REGISTRATION: Early Registration fee for the conference is $325.00 per person payable in advance. The attached registration form should be mailed or faxed to the Institute for Advanced Interdisciplinary Research (IAIR) and be received before May 10, 2002 to avoid billing for the regular registration fee of $375.00. Checks should be made to IAIR. Registration may also be made with credit cards. (A complete listing of credit cards accepted is included on the registration form.) Registrations received before May 25th, 2002 will have their confirmation/receipt faxed to them. Receipts for registrations received after the 25th will be available at the conference site.

LODGING: The Hilton Houston Nassau Bay & Marina, Houston, Texas will serve as the conference headquarters hotel. Rooms are reserved for Mission.Systems 2002 attendees. Reserve your room directly with the hotel. Early registration is highly recommended, as rooms are limited. You must mention the group code "AIA" when making reservations to receive the conference room rate.

Hilton Houston, Nassau Bay   Mission.Systems Rate $ 119.00 Single/Double
3000 NASA Road 1   Government Rate $ 78.00 Single/Double
Houston, TX 77058
Phone: 281.333.9300

RESERVATIONS ONLINE: Go to www.hilton.com, follow the links to Hilton Houston NASA Clear Lake then to "Book a Room" enter all pertinent information then scroll down the page to the block labeled "Group Code" and enter the three letter code "AIA".

TRANSPORTATION: The Hilton Houston Nassau Bay and Marina is located just 17 miles south of Houston's Hobby Airport and seven miles from Ellington Airfield. Listed below are some local independent shuttle services which provide pickup and departure services.

Clear Lake Shuttle Bus, Inc.	**281.334.3873**
Bay Area Taxi	**281.339.2180**
AAA Shuttle & Taxi	**281.338.7133**
Taxi Service by Dennis	**281.630.1608**

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Mission.Systems 2002 Registration Form

May 29th – 31st, 2002
Houston, Texas

Administration:
The Institute for Advanced Interdisciplinary Research

Location:
Hilton Houston Nassau Bay and Marina,
Houston, Texas

Registration includes: Admittance to kickoff reception, poster session, all regular sessions and includes one copy of both the attendees list and the Mission.Systems 2002 Conference Proceedings on CD-ROM.

- Early Registration Fee $325.00   _____
- Regular Registration Fee: (due on all registrations received after May 10st): $375.00   _____

Total Payment Due   _____

All conference attendees please complete this form and pay the meeting registration fee, regardless of the number of days that you attend.

Name: _____

Title: _____

Organization: _____

Department/Mail Code: _____

Address: _____

City: _____ **State:** _____ **Postal Code:** _____

Phone: _____ **Fax**: _____

EMail: _____

Please Note: Payment must accompany the registration form. Payment should be in form of credit card (American Express, Discover, Novus, Mastercard, Optima, Visa, and Eurocard only), check or money order made payable to **IAIR.** Government credit cards are accepted. Mail or Fax your registration to the following address:

Mission.Systems 2002 Registration	**Credit Card Information**
c/o **IAIR**	circle one (Amex, Discover, Novus, Optima, Visa, MC, EC)
PO Box 890025	Name (as on Card) ....
Houston, Texas 77289-0025	Account # ....
Secured fax for registrations **281.286.8555**	Exp. Date..
	Signature ....

URL: http://www.mission.systems.org